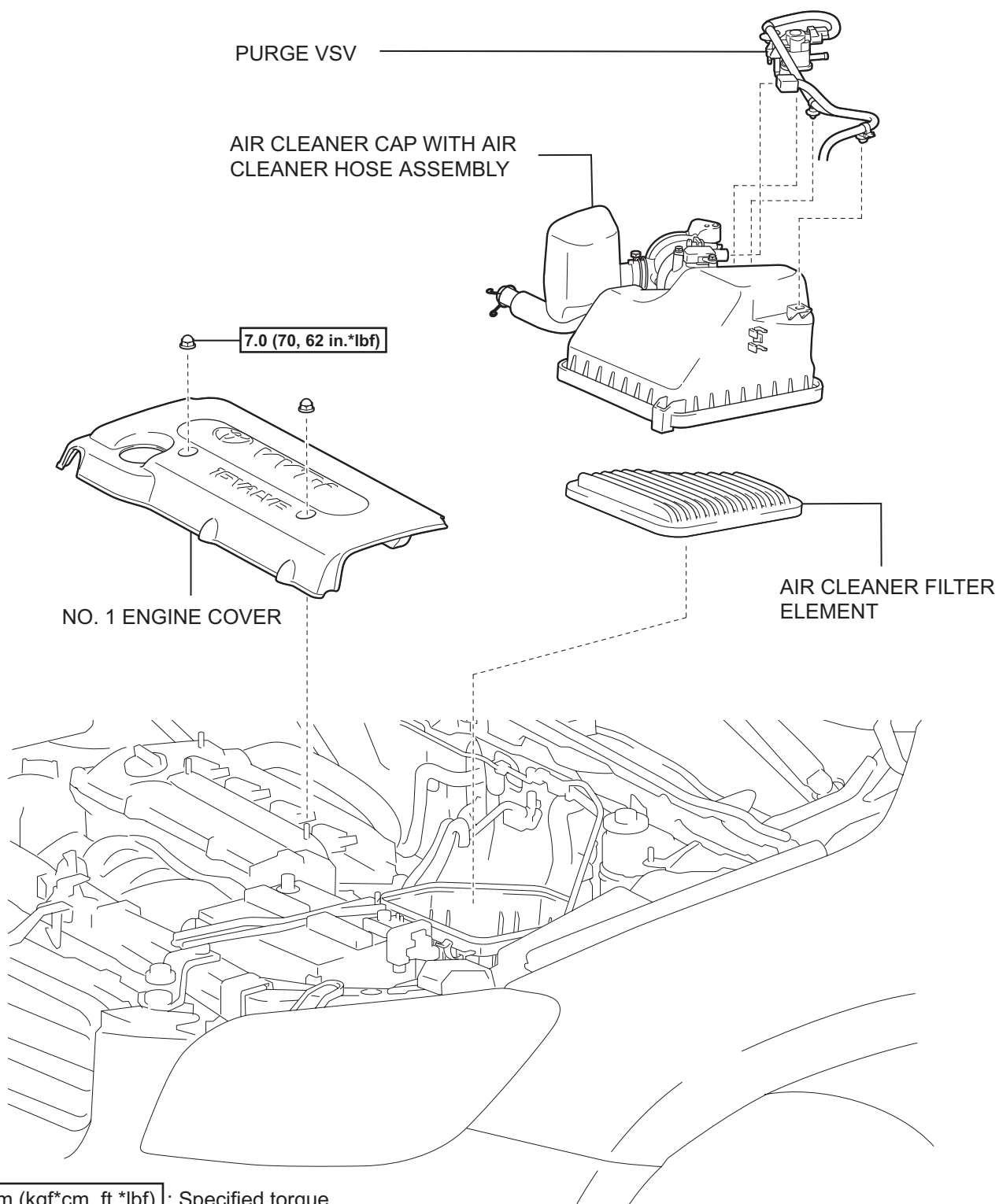


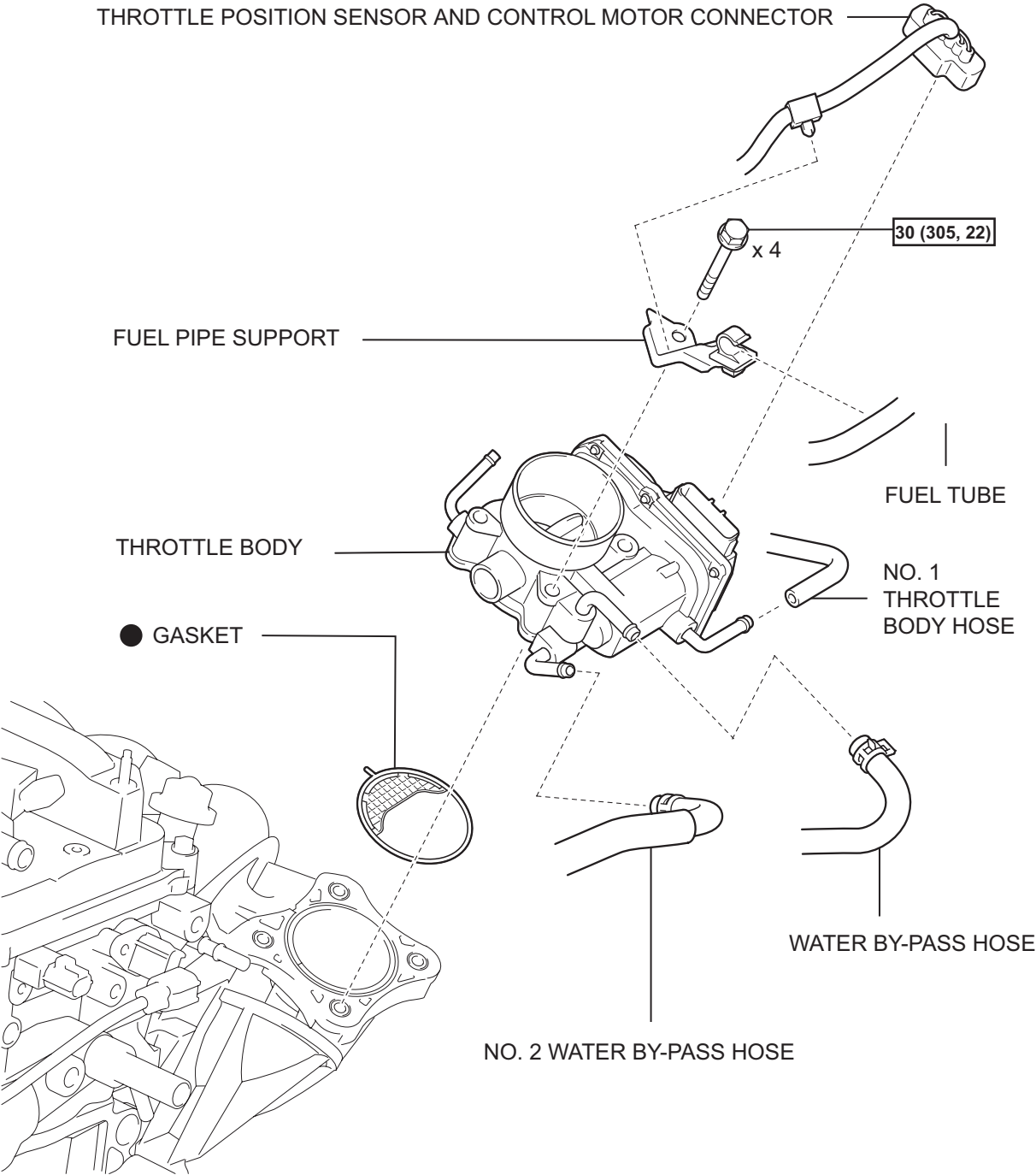
KNOCK SENSOR

COMPONENTS



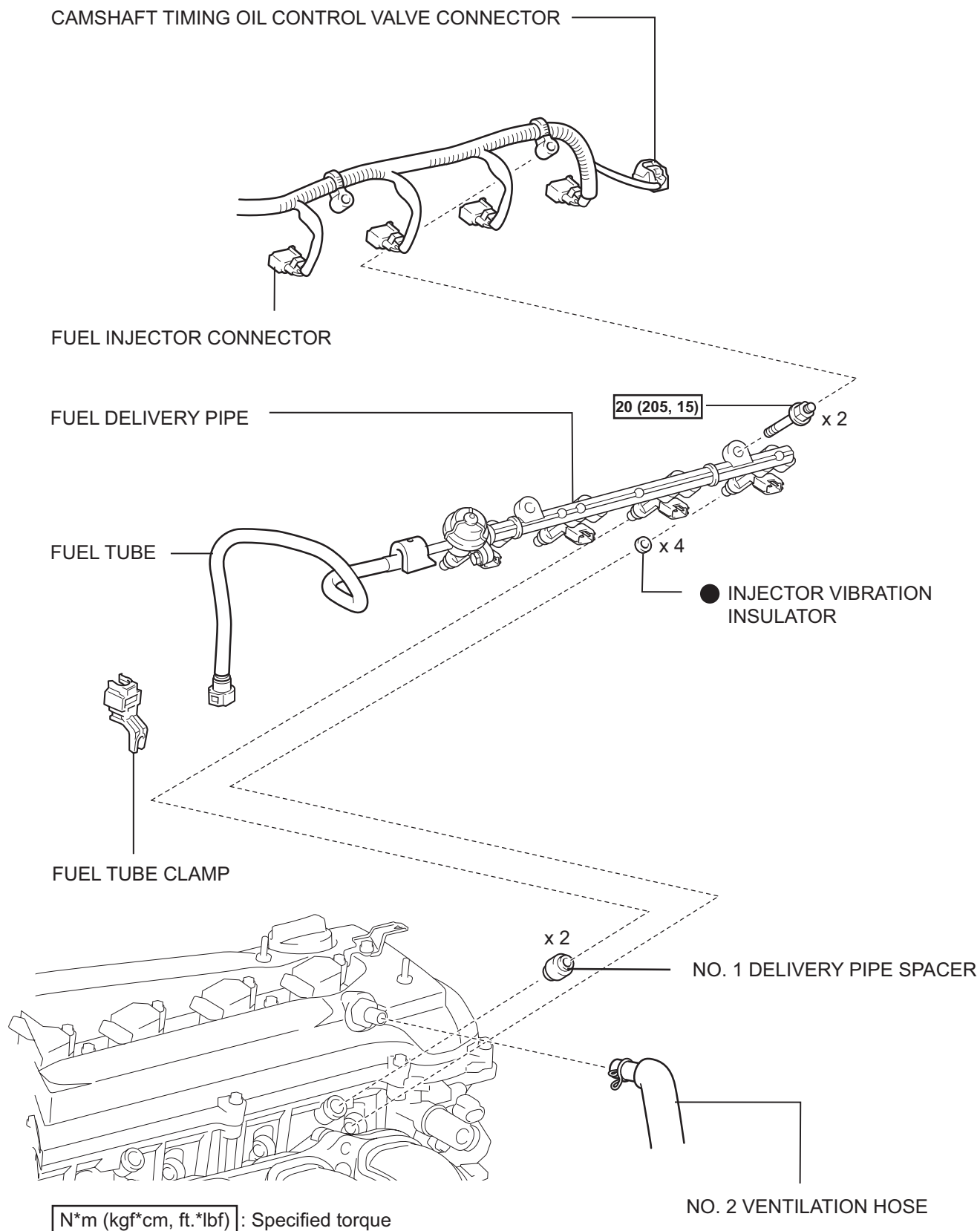
ES

ES

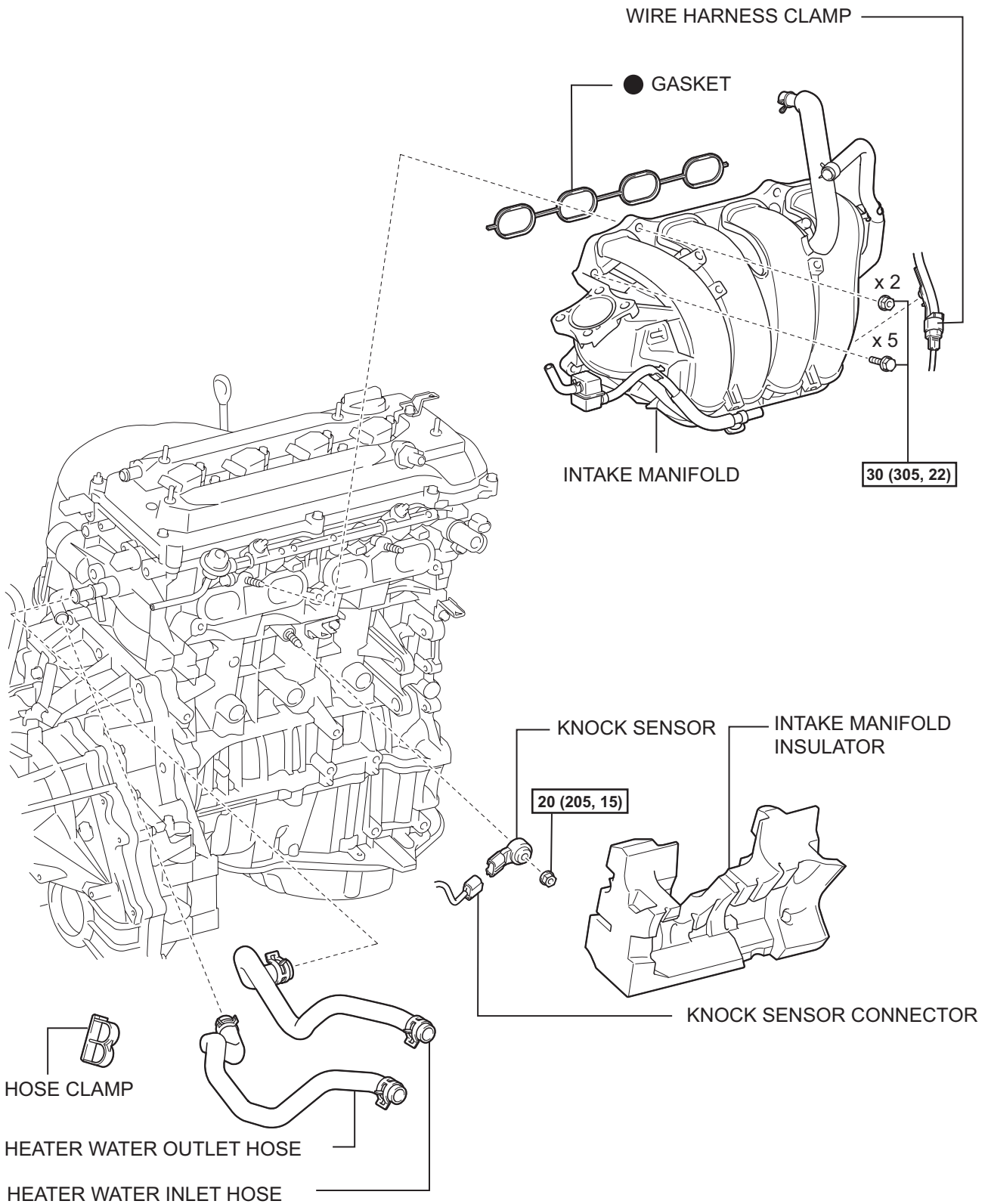


N*m (kgf*cm, ft.*lbf) : Specified torque

● Non-reusable part



ES

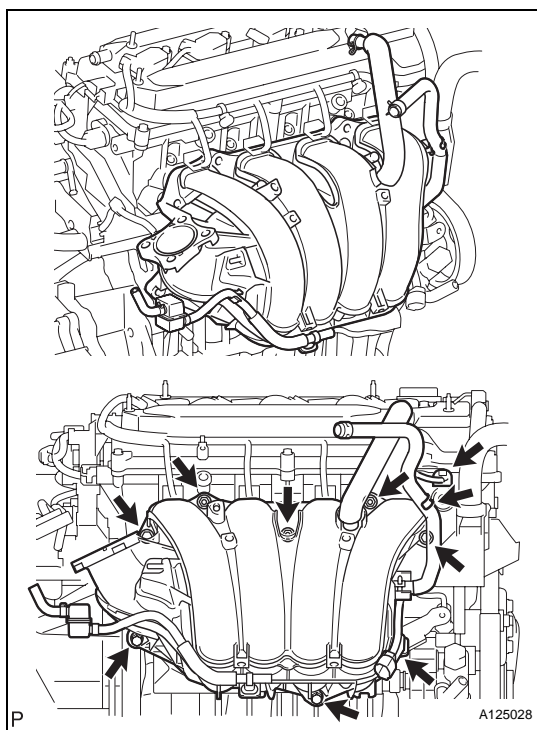


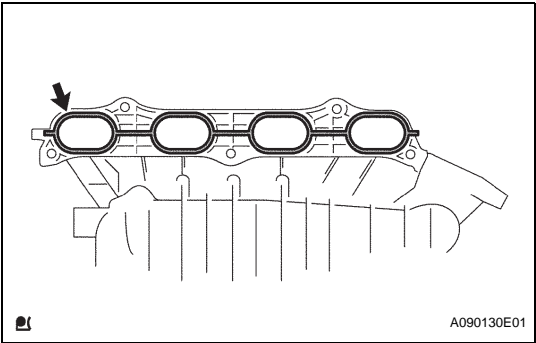
N*m (kgf*cm, ft.*lbf) : Specified torque

● Non-reusable part

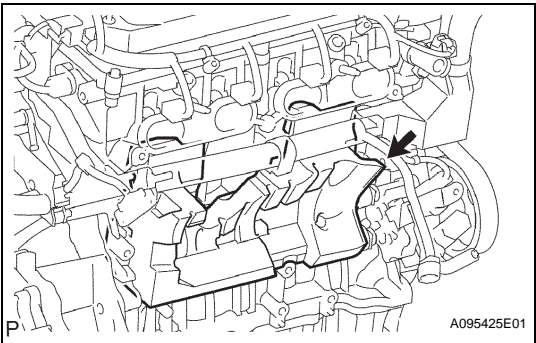
REMOVAL

1. **DISCHARGE FUEL SYSTEM PRESSURE** (See page [FU-9](#))
2. **DRAIN COOLANT** (See page [CO-6](#))
3. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
CAUTION:
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.
4. **REMOVE NO. 1 ENGINE COVER** (See page [ES-410](#))
5. **REMOVE AIR CLEANER CAP** (See page [ES-411](#))
6. **REMOVE THROTTLE BODY** (See page [ES-412](#))
7. **REMOVE FUEL DELIVERY PIPE** (See page [FU-10](#))
8. **DISCONNECT FUEL TUBE**
9. **REMOVE HEATER WATER INLET HOSE**
 - (a) Remove the hose clamp.
 - (b) Remove the heater water inlet hose from the heater radiator unit and cylinder head.
10. **REMOVE HEATER WATER OUTLET HOSE**
 - (a) Remove the heater water outlet hose from the heater radiator unit and water by-pass pipe.
11. **REMOVE INTAKE MANIFOLD**
 - (a) Disconnect the union to check valve hose from the brake booster.
 - (b) Disconnect the camshaft timing oil control valve connector.
 - (c) Remove the wire harness clamp.
 - (d) Remove the union to check valve hose from the vacuum hose clamp.
 - (e) Remove the 5 bolts, 2 nuts and intake manifold.



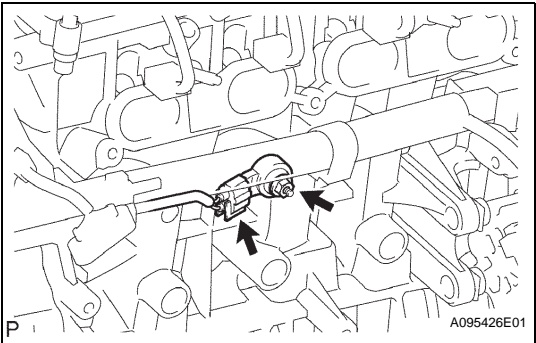


(f) Remove the gasket from the intake manifold.



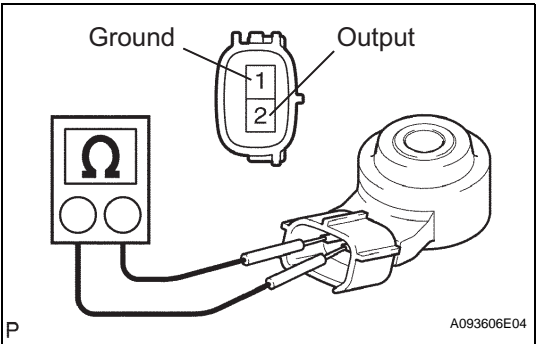
12. REMOVE INTAKE MANIFOLD INSULATOR

(a) Remove the intake manifold insulator from the cylinder block.



13. REMOVE KNOCK SENSOR

(a) Disconnect the sensor connector.
(b) Remove the nut and sensor.



INSPECTION

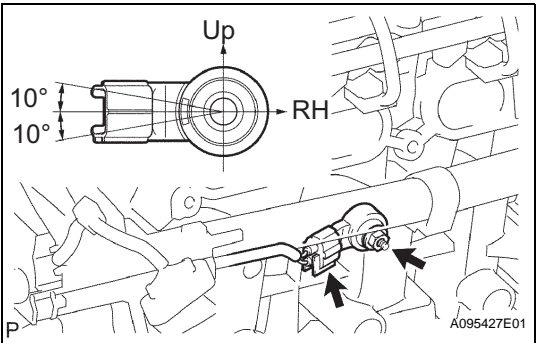
1. INSPECT KNOCK SENSOR

(a) Measure the resistance of the sensor.

Standard resistance

Tester Connection	Specified Condition
1 (Ground) - 2 (Output)	120 to 280 kΩ at 20°C (68°F)

If the result is not as specified, replace the knock sensor.



INSTALLATION

1. INSTALL KNOCK SENSOR

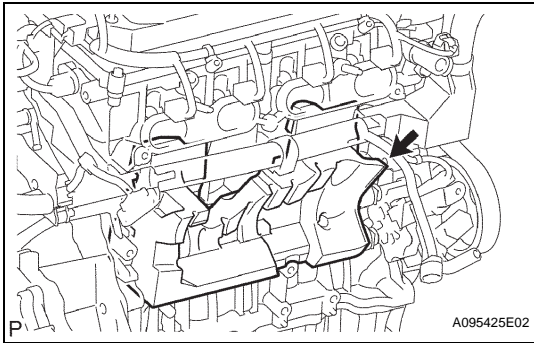
(a) Install the sensor with the nut.

Torque: 20 N*m (205 kgf*cm, 15 ft.*lbf)

NOTICE:

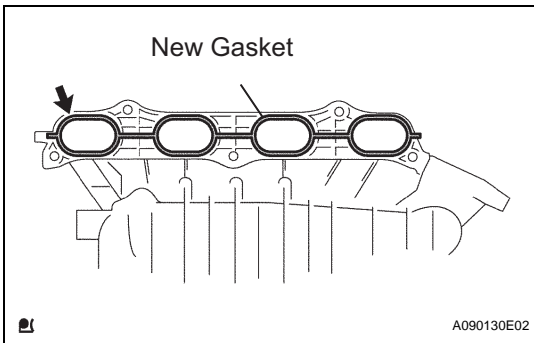
Make sure that the knock sensor is in the correct position.

(b) Connect the sensor connector.



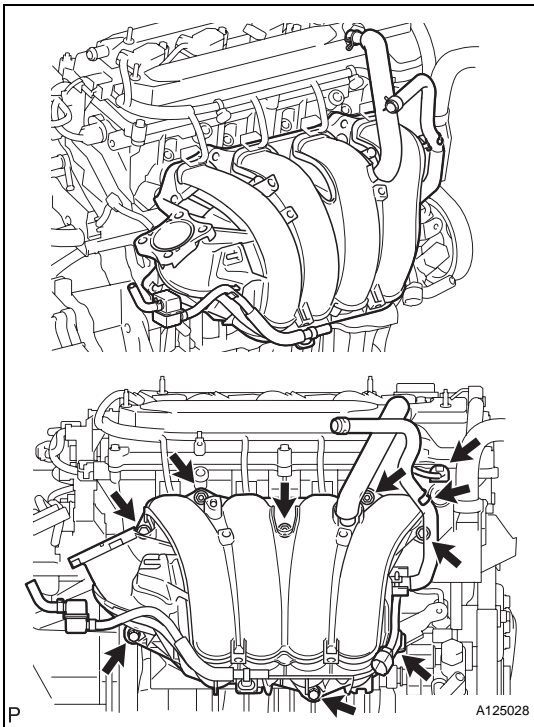
2. INSTALL INTAKE MANIFOLD INSULATOR

- (a) Install the intake manifold insulator onto the cylinder block.



3. INSTALL INTAKE MANIFOLD

- (a) Install a new gasket into the intake manifold.



- (b) Install the intake manifold with the 5 bolts and 2 nuts.
Torque: 30 N*m (305 kgf*cm, 22 ft.*lbf)
- (c) Fit the union to check valve hose into the vacuum hose clamp.
- (d) Install the wire harness clamp.
- (e) Connect the camshaft timing oil control valve connector.
- (f) Connect the union to check valve hose to the brake booster.

4. CONNECT HEATER WATER OUTLET HOSE

- (a) Install the heater water outlet hose to the water bypass pipe and heater radiator unit.

5. CONNECT HEATER WATER INLET HOSE

- (a) Install the heater water inlet hose to the cylinder head and heater radiator unit.
- (b) Install the hose clamp.

6. INSTALL FUEL TUBE

7. INSTALL FUEL DELIVERY PIPE (See page [FU-13](#))

8. INSTALL THROTTLE BODY (See page [ES-413](#))

9. INSTALL AIR CLEANER CAP (See page [ES-413](#))

10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

11. ADD ENGINE COOLANT (See page [CO-6](#))

12. CHECK FOR ENGINE COOLANT LEAKAGE (See page [CO-1](#))

13. CHECK FOR FUEL LEAKAGE (See page [FU-14](#))

14. INSTALL NO. 1 ENGINE COVER (See page [ES-414](#))